

Consensus	MMVLVLGI	CVKIP	LR..KTHR.T	LS.KN.LARF	LKE.AYRLSO	I..(1)	60 (2)	
boPAG 8	.....	.....	TKM..QEA	IRE.QL.ED.	D.QPHS..	H..N..(P.S.	59
boPAG 2	.....	.....	KMH..L.E.	RE..L..E.	E.O..K..N..D..	..L..	56
boPAG12	.....	.....	L..L..	TKT..EI	WRE.K.L..S.	E.O.N.M.D.D.ASDPK.S.	59
boPAG11	.....	.....	I..F..	OV..K..G..M..K..	..HP..	SE.HP.N..KAAND..HY	60
boPAG 9	I..G..	L..M..I..	OM..E.	REHRL.T..	V..H..F..	59
boPAG10	.....	.....	.....	RV..TK	NA I.G.T..I..	H..P..F..	59
boPAG 4	.....	.....	.....	RL..NV	V.G..M..	H..S..F..	59
boPAG 6	.....	.....	.....	RV..N	V.G..I..I..	H..F..	59
boPAG 1	.....	.....	.....	TKV..K..	E..M..	O..S..I..	59
boPAG 3	.....	.....	.....	RV..K..	G..M..	DP..H..F..	59
boPAG 7	.....	.....	.....	.....	.....	.....	59
Consensus	.HPLRNI.D.	YVGITIGT	PRQFQVFD	TGSS	LWVPS	I.C.S.AC.T.H.RFRH..SS	120 (62)	
boPAG 8	S.Q.K.FQNA	V.F.T..	VD.Q.P.S.K.	K..DPQK.T	119
boPAG 2	I..VL.T.A.	T.T.P.Y.	KT.NPOM.	116
boPAG12	I..K.VL.M.A.	S.V.P.Y.	KT.NLBN.	119
boPAG11	T..AL.M.A.	K.R..	K.I.P.H.	IT.D.HK.	116
boPAG 9	I..KHL.V.	FCM.P.SA	FWM..OLO.	118
boPAG10	H..SVK.F	S.I..N.	Y.O.SS.YK	NS.VPCN.	120
boPAG 4	I..R.F.	F.N.ST.SK	D..LE.	119
boPAG 6	R.L.F.	A..F.N.SS.AA	V..HO.	118
boPAG 1	T..K.L.V.H.	DF.T.P.S.	V..LO.	119
boPAG 3	T..K.L.L.	DF.T.R.S.	V..LO.	119
boPAG 5	I..M.M.V..K.	VF.P.S.S.	I..LE.	119
boPAG 7	I..R.I.F.	D.N.TS.A.	V..LO.	119
Consensus	TFR.TKHTF.	I.YGSG.MKG	L.DTVRIG	LVSTQDPFG	LS.EE..GF.	.....DGVLG	180 (120)
boPAG 8	..OPL.OKIE	LV..T..	V.GS..IG.	N..IVN.I..	ONQSS.VL	EQVPP..I.	179	
boPAG 2	S..VNGCIT	F..IIQ	F.GS..	N..PE.S..	L..Y..D	SLP.F..I.	174	
boPAG12	S..QK.HOPIS	S..P.IIQ	F.GS..	N..LK.S..	O..Y..D	GAP.F..I.	174	
boPAG11	L..LRP.H	L..M.N.	V.AY..	K..	LAQ.F	D.NAP.F.	177	
boPAG 9	OP..T	T..S.	F.AY..	D..	V..Y..LE	GRN.Y.	176	
boPAG10	KA..I.N	TH.TATS.I	.....	N..VA..	LK.F	D.VVP.F..I.	178
boPAG 4	LSRR..S	T..R.IEA	LVWH..	D..O..	CL.SS..E	GRI.F..	177	
boPAG 6	P..R..T	R..T..	VVN..	N..	CLSD.S	GIF.F.	176	
boPAG 1	L..R..T	R..T..	VVN..	N..	I..Y..E	GRV.F.	177	
boPAG 3	L..R..T	R..T..	VVN..	N..	V..Y..E	GRVY.	177	
boPAG 5	SGL.Q	S..T..	ST..F.AY.	D..L..E..	N..Y..A	HKRF..I.	178	
boPAG 7	P..R..I..R.N.	VIAY..	.....	.....	.....	.....	177
Consensus	L.VP..S.G	AIPIDNKLN	QGAISEPVFA	FYLS..	EG	SVNHGGVDH	YYGGLAW.	240 (180)
boPAG 8	A..SLAIG	TT.V..	.....	SRPENI	T..	T..H..K..Q..I	239
boPAG 2	AF..AMCIG	T..WS	H..F..	NTNKP.	.....	R..I..	234
boPAG12	A..SI.IK	I..WS	F..	NTCOP.	.....	R..I..	234
boPAG11	SLAVP.	T..R..Q	.....	TKKEN	L..L..	S..H..K..I	237
boPAG 9	N..NI	FS..	.....	KKKQ.	.....	Q..	236
boPAG10	G..RTTIT	N..MK	V..	SGKEN	.....	NR.A.	236
boPAG 4	S..THI	FE..	.....	KDER	Y..E..	R..I..	237
boPAG 6	S..NKTES	F..K..E.	.....	KKKQ.	.....	R..I..	236
boPAG 1	N..NI	FS..	K..	R..	KDER	R..E..V	237	
boPAG 3	N..NI	FS..	.....	IL..KDDQ	.....	R..E..V	236
boPAG 5	N..DM	FTT.T	.....	GKKV.	.....	T..	235
boPAG 7	N..WNL	WSK	H..K..E.	.....	NI..	.....	213
Consensus	P..Q.G.W..	KDRISM.R.	VIACS.GC.A	LVDTGTS	I..	GP.RLV.NI..	KLI.A.P..G	300 (239)
boPAG 8	VT..ARF.OV	A.SMT.NGN	VG..O..Q.	V..LVV	TH..ID.L	..NPH.LDN	293	
boPAG 2	VS.TSR.OI	S.NN..	NGN.T.C.E	M..Y..TK	T..H..	KN.RL.N	299
boPAG12	VS.TRY.OI	S.NN..	NGN.T.C.E	M..Y..TK	T..H..	KN.RL.N	299
boPAG11	VS.TKS.LI	TV..NGR	G.DH.E.	.....	M..H..A.P.T.O	F.N.H.R.Y.	296
boPAG 9	LIEA.E	RV.H..K.T	D..E..	.....	H..H..E..G..N..H..R	RTD	295
boPAG10	VS.V.S	NI.S.NI	WGT	V..R..O..	SWIR..RISA	W.K.I.SK.O	H..R..ID	296
boPAG 4	LMKA.D	SV.H..K.K	G..K..	S.D.V	ST..N..M..	G..T..O.	296	
boPAG 6	LI.V.D	EV.H..TT.K.K	D..K..	D..V..	ST..N..M..	R..R..L..	295	
boPAG 1	LI.A.D	SV.H..K.K	I..D..K..	.....	A..E..R..H..G..R..	R..	296
boPAG 3	LIEA.D	II.H..K.K	I..GS.E.	I..A..E..	R..K..NK.H	G..R..RH	297	
boPAG 5	LI.A.E	SL.H..K.K	G..E..	.....	LL..R..N..O..	G..T..O.	294
boPAG 7	T.N.E	S.H.Q.	G..ID..Q	RI.G.T..R.	257
Consensus	SE..VSC.AV	LPSLIIFTI	NGI.YVPV.	AYI.KDSRG	C..F..	S..ET	360 (295)
boPAG 8	D.QML..D	I.NS..TLLL	V..PD	Y..QRF.ERI	FIS.QOOTE	ILNKLGTS..	359
boPAG 2	YV..D..	KT..PV.N.	D..LAPQ	I..IQN-S	RSV.QOOTE	N..SIN.	348
boPAG12	YV..D..	KT..PV.N.	D..LAPQ	I..IQN-S	RSV.QOOTE	N..SIN.	348
boPAG11	YH.L	PVI	SI..PV	Q.I.NSL	LST.HQD-D	348
boPAG 9	YH.L	PVI	SI..PV	Q.I.NSL	LST.HQD-D	348
boPAG10	R.VH..Q	I.GT..PAV	D..AQ	OSL.G-Y	FSN.LVPO	RWNES	352
boPAG 4	HY..S..	NS..	KSBN.R	QO..L..	R..YTA	KORQO	S..ST..H	352
boPAG 6	HY..S..	NS..	KSBN.R	QO..L..	R..YTA	KORQO	S..ST..H	352
boPAG 1	HY..P	SE..NT..V..	N..GR	L..D..R	YTT.QENRV	S..ST..	351	
boPAG 3	KYVI..S	NT..	N..C.GR	VL..R	YTN.QENRV	S..ST..	353	
boPAG 5	KYI..F	IS..	N..AR	H..H	YTT.KENTY	.....	350
boPAG 7	KYI..S	NI..	VN..PR	L..H	YTT.KENRV	RR..T.S	313	
Consensus	WILGDFLRL	YFVSFDRGND	RIGLA.AV	.....	.....	.....	388 (323)
boPAG 8	.....	Y..N..	P..A	.....	.....	.....	387
boPAG 2	.....	I..O	K..R	.....	.....	.....	376
boPAG12	.....	G..O	R..S..Q	.....	.....	.....	375
boPAG11	.....	Y..N	P..	.....	.....	.....	376
boPAG 9	.....	A..R	.....	.....	.....	.....	379
boPAG10	.....	.....	RK..	TK..	.....	.....	380
boPAG 4	.....	.....	R..	.....	.....	.....	380
boPAG 6	.....	.....	R..	.....	.....	.....	379
boPAG 1	.....	.....	R..	.....	.....	.....	380
boPAG 3	.....	.....	V..R	.....	.....	.....	381
boPAG 5	.....	.....	OV..	.....	.....	.....	377
boPAG 7	.....	.....	RR..	.....	.....	.....	341

FIG. 1

		(1)	
Consensus	<u>MMMLVLGLV AFSECEIKVP</u> LARKVTRUKT LSGKNLKNLF LKENPYRLSQ ISFR.SNLTI	60	(3)
ovPAG4	.....F.....DV.....P.....G.....I.....	60	
ovPAG7	.....F.V.....L.....N.....V.....Y.....P.....D.....V.....	60	
ovPAG3	.....F.....V.....N.....L.....V.....Y.....P.....D.....V.....	60	
ovPAG6	.....SI.....E.....A.....G.....	60	
ovPAG1	.....N.....K.....S.....A.....A.....A.....	60	
ovPAG5	.....SV.....RV.....E.....KK.NV.QE.....KV.....A.....N.T.N.KHAF	60	
ovPAG9	.....W.....L.....IM.....TKT.....EI.....RE.....L.....E.QAN.H.D.D.A.SDFK.ST	59	
ovPAG2	.....W.....L.....IM.....TKT.....EI.....RE.....L.....E.QAN.H.D.D.A.SDFK.ST	60	
ovPAG8	.....A.....I.....SN.....A.....K.....G.....T.....	60	
Consensus	<u>NPLKN.D... YVGNITIGTP PQEPV.FDT GSSDLAVPS</u> FC.S.T---C.S.H.RFRH.Q	120	(60)
ovPAG4	.....IR.TF.....V.....V.....L.N.S.....I.V.....L.....	117	
ovPAG7	.....NK.IF.....P.....T.....I.....WN.S.....TLV.....K.R.....	117	
ovPAG3	.....NK.IF.....P.....T.....I.....WN.S.....TLV.....K.R.....	117	
ovPAG6	.....TK.LV.....L.....S.....D.....AIEA.....L.T.....L.....	117	
ovPAG1	.....IM.NL.....L.....M.....I.....N.L.P.KRP.....KDK.K.H.....	120	
ovPAG5	V.M..FL.LA.....P.M..RG.GEO.R.....N.....T.PA.....YS.IT.KYWE	117	
ovPAG9	.....S.YI.ML.....T.....K.....I.....N.....T.PA.....TQA.....YR.....	116	
ovPAG2	.....AL.MA.....V.....K.....R.....I.....K.I.PA.....YT..T.D.HK	117	
ovPAG8	.....M.W.LL.....L.....R.....L.....L.N.S.....AK.VM.....RL.....	117	
Consensus	<u>SSTFR.TNKT F.I.YG.G.H KGVVANDTVR</u> IGDLVSTDPQ FGLS..E.GF.....PPFDGVLG	180	(120)
ovPAG4	.....T.....T.....W.T.A.T.....I.....MA.Y.....HGR.....	177	
ovPAG7	.....T.....T.....W.T.A.T.....I.....MA.Y.....HGR.....	177	
ovPAG3	.....LA.....G.H.A.K.....V.....V.....S.....EIBO.....	177	
ovPAG6	.....P.....R.....S.....T.....C.T.V.....V.....TA.HVS.RCT.....	177	
ovPAG1	.....F.....D.....R.YP.S.T.R.F.....I.....FL.SWL.D-I.....	179	
ovPAG5	.....Y.N.T.P.E.A.S.RT.....HL.Y..IO.....N.....LV.Y.....NGL.....	177	
ovPAG9	.....L.....R.....C.T.S.G.....I.....N.....TLR.Y.....DNI.....	176	
ovPAG2	.....L.RRP.....R.L.S.M.N.L.Y.....N.....LQOF.....DNA.....	177	
ovPAG8	.....Y.L.....M.F.RV.KI.E.VR.....A.....T.....IA.T.....ENTTL.....	177	
Consensus	<u>LWVF..S..G..IFIPDKLN</u> EGAISEPVFA FYLSKD.QES SVVMFGVDH..VYKGLNWF	240	(180)
ovPAG4	.....RO.CCR.FT.....O.....E.....R.....	237	
ovPAG7	.....RO.CCR.FT.....O.....E.....R.....	237	
ovPAG3	.....NL.FSK.T.....E.....E.....S.....K.....	237	
ovPAG6	.....SI.FWS.T.....G.....G.....R.....	237	
ovPAG1	.....KI.FS.A.....F.....N.....K.....	239	
ovPAG5	.....N..TL.A.....N..K.Q.....I.....GTVN.....L.L.L.....K.A.....I.....	236	
ovPAG9	.....NI.FS.AV.....L.....F.....E.....R.....E.....	236	
ovPAG2	.....S..SLAVP.T.....O.Q.....I.....TKEN.....L.L.L.....S.H..K..I.....	237	
ovPAG8	.....S..NT.CF.A.....N.....N.....	212	
Consensus	<u>PL..AGDW.I..VDRISM.R..VIACS.GC.A</u> <u>AVDTG.S.I.</u> GP.RLVNDIQ KLIGA.F.G..	300	(240)
ovPAG4	..VK.D..T..O.....R.E.....D..D.....L..A..F..H..G..I..D.....SE.RDL	297	
ovPAG7	..VK.D..S..H.....R.E.....D..D.....L..A..F..H..G..I..D.....SE.RDL	297	
ovPAG3	..IK.....SV.R..S.T.K.E.....D..R.....S..H..Q..G..I..V.....TM.Q.S	297	
ovPAG6	..IP..N.MV.RN.....YIE.N.....A..K..V..AAE.....KSO..M..F..R.R.S	297	
ovPAG1	..IHP.E.S..PL.....R.K.....G.E.....G..T..L..RTV.E.....H..TQCF	299	
ovPAG5	..IRV.....R..R.H..RGR.L.G.G.E.....P..N.....T..T.....R..H.L.P	296	
ovPAG9	..TK.....IV.RL.....IG.R.....GD.E.....V..TA..G..RK..KK.....RR.N	296	
ovPAG2	..VSQTS.L..T.....NGK.....G.EH.E.....T..H.....AGP.T.....R..H.Y.QS	297	
ovPAG8	..TSQTS.L..T.....NGK.....G.EH.E.....T..H.....AGP.T.....R..H.Y.QS	258	
Consensus	<u>KHVSCSAVN TLPSIIFTIN</u> GINYPVPAQA YILK.S.G.C YT.F...RVR..STE.WVLGD	360	(300)
ovPAG4	.....I.....G.T.H.....A.RAK.....T.....S.....	357	
ovPAG7	.....I.....G.T.H.....A.RAK.....T.....S.....	357	
ovPAG3	M...P.....GFT.H.....A.RAK.....T.....S.....	357	
ovPAG6	Y...P..V.....R..S.....GR.....NHR.R.....T.KENMS.P..I..I.....	357	
ovPAG1	EYF.....Y.A..V.....F.....LV.D.R.Q.....SP.QVN.AN.P.A.N.I.....	359	
ovPAG5	.....TI.....I.....TL.....T.Q.G.F.T.KGA..F.KHR.T.....	356	
ovPAG9	.....D.A.R.S.T.OEN.....L.S.S.L.N.....	323	
ovPAG2	EYM...PVIS.I..PV.....S.D.S..E.....Q.I.NSL..SS.HODN.....D.I.....	353	
ovPAG8	M...P.....GR.....DPR.R.....N.KKXIA..TF..Y.....E	318	
Consensus	<u>VFLRLYFSVF DRGNDRIGLA PAV</u>	383	(323)
ovPAG4	.....M.....	380	
ovPAG7	.....M.....	380	
ovPAG3	.....H.....R.G.....	380	
ovPAG6	.....H.....R.....	380	
ovPAG1	.....R.....	382	
ovPAG5	I.....Y.....ENH.A..Q.R.....	379	
ovPAG9	.....W.L.....	365	
ovPAG2	.....Y.....N.....	376	
ovPAG8	P.....	341	

6667ED" h9TE226D

boPAG 2 4 5 6 7 8 9 10 11 12

Hybrid(d25)	4	1	1	1	5	1	1	1	1
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Immuno(d25) 19

RT-PCR(d19)	9	11	3	3	6
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FIG.3

BoPAG:	1	2	3	4	5	6	7	8	9	10	11	12
1	100 100											
2	73 57	100 100										
3	91 86	74 58	100 100									
4	88 76	73 55	87 73	100 100								
5	86 75	60 61	86 74	85 76	100 100							
6	89 80	73 57	88 78	89 76	84 70	100 100						
7	87 79	73 56	87 78	86 71	85 72	89 77	100 100					
8	68 53	68 55	67 51	67 49	70 54	69 53	71 53	100 100				
9	87 77	74 59	88 78	85 68	85 74	87 74	86 71	68 53	100 100			
10	70 56	72 50	69 55	68 53	71 58	70 57	68 53	71 55	69 57	100 100		
11	74 59	77 62	73 58	73 56	76 62	73 59	75 59	72 56	73 57	72 57	100 100	
12	75 61	90 83	75 60	74 58	77 63	75 59	74 58	70 56	75 60	73 60	79 64	100 100

FIG. 4

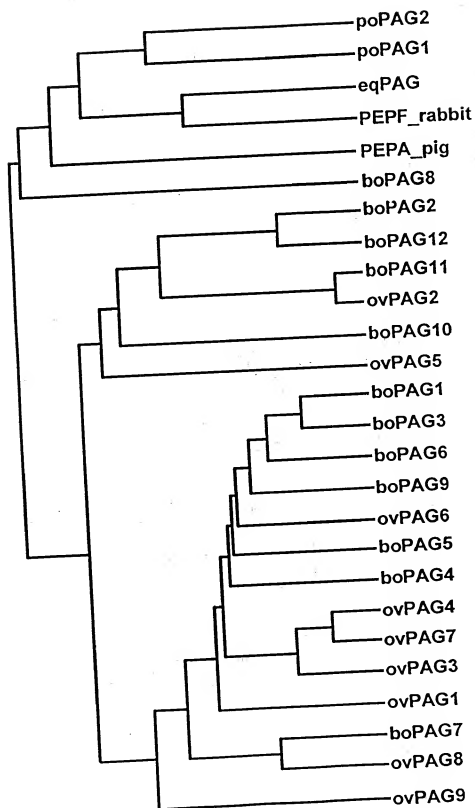


FIG. 5

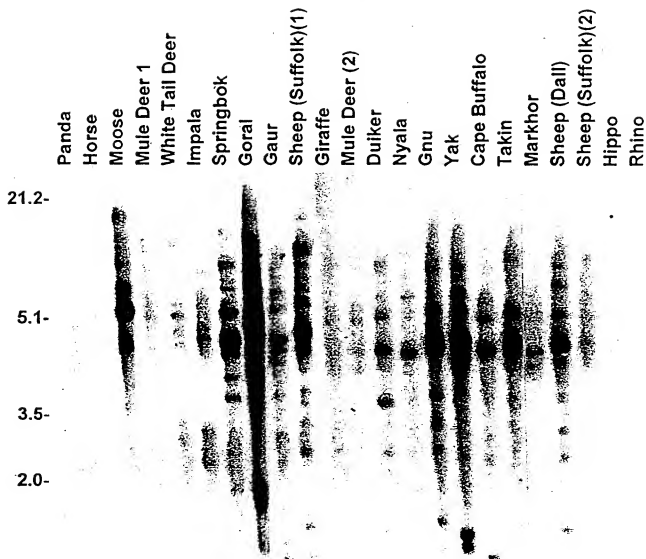


FIG. 6